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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,670	06/19/2001	Stephen R. Fox	YOR920010104(14270)	4482

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EXAMINER

POMPEY, RON EVERETT

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,670

Applicant(s)

FOX ET AL.

Examiner

Ron E Pompey

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 25-36, 40, 48 and 49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 25-36, 40, 48 and 49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-22, 25-36, 40, 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadana et al. (US 6,090,689) in further view of Tachimori et al. (US 5,534,446) and Sadana et al. (US 5,930,643).

Sadana ('689) discloses the steps of:

For claims 1-22 and 25-29:

implanting oxygen ions (14, 18, fig. 2) into a surface of a Si-containing substrate, said implanted oxygen ions having a concentration sufficient to form a buried oxide region during a subsequent annealing step; and

annealing said substrate wherein, said implanted oxygen ions form said buried oxide region (22, fig. 3) (col. 3, lns. 6-12 and col. 4, ln. 8 – col. 5, ln. 34).

Sadana ('689) discloses the claimed invention except for:

wherein the annealing step is carried out in an ambient gas comprising at least one high-surface mobility gas that hinders oxide growth; and

wherein the annealing step comprises the steps of: partially annealing the substrate so as to form a surface layer of oxygen on the substrate; stripping the surface layer of oxygen; and continuing the annealing to complete the formation of said BOX

region. However, Tachimori teaches an annealing step is carried out in an ambient gas comprising at least one high-surface mobility gas that hinders oxide growth (col. 7, ln. 55 – col.8, ln.5) and Sadana('643) teaches partially annealing the substrate so as to form a surface layer of oxygen on the substrate; stripping the surface layer of oxygen; and continuing the annealing to complete the formation of said BOX region (col. 5, lns. 22-43).

Therefore it would have been obvious to those of ordinary skill in the art to combine Tachimori and Sadana ('643) because, the high-surface mobility gas will prevent the semiconductor surface from roughening and that the oxide is of poor quality and needs to be removed before forming a device on the SOI substrate.

Response to Arguments

3. Applicant's arguments filed 6-18-02, pertaining to claims 1-22, 25-36, 40, 48-49, have been fully considered but they are not persuasive. The applicant argues that neither of the prior art stated in the rejection disclose the annealing step performed in an ambient gas comprises from 0 –90% oxygen and from about 10-100% of N₂. The examiner would like to point out that with the range that is claimed by the applicant that an annealing disclosed as in 100% N₂ would read on the claimed invention (which is disclosed in the background of the invention section of the specification of the present invention). Sadana does in column 4 state that a "post implantation anneal was done in an inert ambient nominally mixed with less than 2 percent oxygen". therefore it would be inherent that if the annealing is done within the specified range disclosed by applicant than applicant's desired results would be obtained.


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Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E Pompey whose telephone number is (703) 305-3016.


Ron Pompey
Art Unit: 2812
October 21, 2002


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800